CLAIMS

What is claimed is:

Claim 1. Apparatus for manufacturing carbon compounds, comprising:

a first electrode proximate a second electrode and defining a gap thereinbetween for producing carbon compounds;

a first chamber extending around said gap and defining a first effective cross-section and a second effective cross-section, said second effective cross-section being downstream of said first effective cross-section and having a size less than said first effective cross-section;

a second chamber in fluid communication with said first chamber;

a gas inlet in fluid communication with said first chamber; and

a gas entering through said gas inlet, flowing through said first chamber and across said gap, said gas carrying the carbon compounds into said second chamber.

Claim 2. The apparatus of claim 1 wherein said first electrode comprises a linear-feeding porous graphite electrode and said second electrode comprises a rotary graphite electrode.

Claim 3. The apparatus of claim 2 wherein said first electrode has a smaller cross-sectional area than said second electrode.

Claim 4. The apparatus of claim 1 further comprising a soot accumulation chamber in fluid communication with said second chamber.

Claim 5. The apparatus of claim 4 further comprising a collector apparatus connected to said soot accumulation chamber.

Claim 6. The apparatus of claim 5 wherein said collector apparatus continuously collects the carbon compounds.

Claim 7. Apparatus for manufacturing carbon compounds, comprising:

a first electrode proximate a second electrode and defining a gap thereinbetween for producing carbon compounds;

a first chamber extending around said gap and defining a first effective cross-section and a second effective cross-section, said second effective cross-section being downstream of said first effective cross-section and having a size less than said first effective cross-section;

a second chamber in fluid communication with said first chamber;

a gas inlet in fluid communication with said first chamber;

a shield; and

a gas entering through said gas inlet, flowing through said first chamber and across said gap, said gas carrying the carbon compounds past said shield into said second chamber.

Claim 8. The apparatus of claim 7 wherein said first electrode comprises a linear-feeding porous graphite electrode and said second electrode comprises a rotary graphite electrode.

Claim 9. The apparatus of claim 8 wherein said first electrode has a smaller cross-sectional area than said second electrode.

Claim 10. The apparatus of claim 7 further comprising a soot accumulation chamber in fluid communication with said second chamber.

Claim 11. The apparatus of claim 10 further comprising a collector apparatus connected to said soot accumulation chamber.

Claim 12. The apparatus of claim 11 wherein said collector apparatus continuously collects the carbon compounds.

Claim 13. The apparatus of claim 7 wherein said shield defines said first chamber.

Claim 14. The apparatus of claim 7 wherein said shield rotates.

Claim 15. The apparatus of claim 14 further comprising means for scraping accumulated carbon compounds from said shield.

Claim 16. Apparatus for manufacturing carbon compounds, comprising:

a first chamber in fluid communication with a second chamber;

a vaporization location within said first chamber;

means for producing carbon plasma at said vaporization location;

means for directing a carrier gas from said first chamber into said second chamber;

means for increasing gas flow across said vaporization location;

means for shielding said vaporization location from said second chamber.

Claim 17. The apparatus of claim 16 wherein said means for producing carbon plasma comprises opposing first and second graphite electrodes defining a gap thereinbetween for producing carbon compounds.

Claim 18. The apparatus of claim 16 wherein said means for increasing gas flow comprises a shield having a first effective cross-section and a second effective cross-section, said second effective cross-section being downstream of said first effective cross-section and having a size less than said first effective cross-section;

Claim 19. The apparatus of claim 16 wherein said means for shielding defines said first chamber.

Claim 20. The apparatus of claim 16 wherein said means for shielding comprises a rotating spheroid.

Claim 21. The apparatus of claim 16 wherein said apparatus is continuously operated.